

Einstein Award

This is the first activity of three:

- the pre-visit lesson
- visit information
- post-visit lesson.

This activity can be run with classes competing against each other to win the award, or groups of students within the same class.

Students do not necessarily have to visit the Move over Einstein: the next generation is here! exhibition to complete these activities.

If a visit is to take place, this lesson should be carried out prior to the visit.

Aim

The overall aim is give a presentation about a scientist (apart from Albert Einstein) to try and get that person to win the Einstein Award for the most outstanding contribution to physics.

Objectives

- Students should have a good understanding of a range of physicists working in the different areas of this field
- Students should chose their favourite physicist and understand the importance of the work of that person
- Students should understand that they will nominate their chosen physicist to win the Einstein Award.

Curriculum links

Science, History and English

Resources required

Blackboard or whiteboard, pens and paper, access to books containing information on physicists, access to the internet

Teaching activities

Introduction

Introduce the concept that the students must, over the course of this lesson, choose a physicist that they will nominate for the award of most outstanding physicist (alive or dead!). The chosen person cannot be Albert Einstein!

Ask the students to name famous scientists and begin to build up a table of names and the main achievements of these people. This may include the more well known names such as:

- Sir Isaac Newton
- Galileo Galilei
- Marie Curie
- Peter Higgs
- Niels Bohr
- James Prescott Joule
- Nicholas Copernicus
- James Clerk Maxwell
- André Marie Ampère
- Richard Feynman
- Dorothy Hodgkin.

Another option is to include the physicists who are mentioned in the 'Move over Einstein: the next generation is here!' exhibition who are:

- Dr Tony Weidberg (Nuclear physics & recreating the birth of the Universe, University of Oxford)
- Dr John Roberts (Dark Matter, Sheffield University)
- Professor Mark Welland (Nanotechnology and drug transporters, University of Cambridge)
- Professor Miles Padgett (Detecting cancer using a 'super-nose', University of Glasgow)
- Dr Andrew Shields (Quantum cryptography, University of Cambridge)
- Dr Geoff Marcy (Planets around other stars, University of California).

Discuss with the students the major achievements of the physicists and how they have contributed to the development of science.

Activities

Each group of students should research the contributions from a selection of physicists and then choose which scientist they would like to nominate for the Einstein Award. They should think about why that physicist deserves to win the Einstein Award.

Summary exercises

Ask each group to announce which scientist they have chosen to research and nominate for the Einstein Award.

Suggested homework

The follow-on activity is the visit to the exhibition where the students will learn about some highlights of modern physics and will see some complicated ideas being communicated in an easy to understand way.

For homework the students should think about questions that they want to find answers to at the exhibition.

Einstein Award

Objectives

- Students will visit the 'Move over Einstein: the next generation is here!' exhibition and any other relevant galleries
- Students will make notes on how complicated ideas can be communicated
- If they have chosen a physicist named in the exhibition they can learn about their achievements.

Introduction

During their visit to the exhibition the students will be able to learn about the following subjects and the scientists who are leading the research:

- the search for the Higgs particle
- the search for Dark Matter
- the search for exo-planets
- nanotechnology
- quantum cryptography
- smell machine for detecting diseases.

Suggested activities

Ask the students to use the exhibits to make notes about the importance of the science being communicated and look at the ways that complicated ideas are conveyed.

Many of the areas will have a direct benefit on our lives or will help answer fundamental questions about the Universe. Have a discussion of the benefits that are brought by having:

- nanotechnology
- cancer detection
- codes that cannot be broken.

Also, what would it mean if physicists discovered a planet similar to Earth? What if we found signs of life on this planet?

If the students have chosen a physicist highlighted in the exhibition they should look out for information on their work and achievements.

Suggested homework

In the next lesson the students will present the reason why their chosen physicist should win the Einstein Award. For homework the students should draw up a list of the major achievements of their chosen person which can be combined with the other members of their group.

Einstein Award

Objectives

- Students will be able to understand and communicate the importance of their chosen physicist
- They must give a presentation to try and win the support of the judges so that their physicist wins the Einstein Award for outstanding contribution to science.

Curriculum links

Science, History and English

Resources required

Presentation materials if necessary (projector, screen, poster materials etc).
If relevant you may like to award a framed certificate to winning team.

Teaching activities

Review

Review the previous lesson and the exhibition visit. Remind students that they are giving an award to the person who has made the most outstanding contribution to physics (not Albert Einstein).

Introduction

In this activity the students will prepare and give their presentations to communicate why their chosen physicist should win the Einstein Award. The presentations may be held as a series of assemblies if the whole school is taking part, or during a lesson.

Activities

Students need to decide how they will communicate the importance of their chosen physicist to convey why they should win the Einstein Award. They may like to use one of the following options:

- oral presentation
- poster presentation
- drama
- mock interview with physicist.

The students should prepare their presentations in their chosen format. The presentations should then be given as a series of assemblies, poster viewings or during a lesson.

Plenary

The presentations should be voted on by the students to determine which physicist has made the most outstanding contribution. Following the vote, present the winning team with their award.

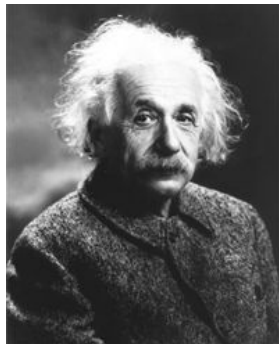


*Move over Einstein:
the next generation is here!*

This is to certify that

has been awarded the

Einstein Award



by

**for their outstanding achievements in the following
area of physics**
